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NEWSLETTER

of the

Hawaiian Botanical Society

c/o DEPARTMENT OF BOTANY
UNIVERSITY OF HAWAII
HONOLULU 14, HAWAII

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June 1963

SMITHSONIAN
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KAENA POINT, OAHU

Drs. Otto & Isa Degener

Kaena Point, even from the coastal plain, furnishes a magnificent view of the Waianae and northwestern Oahu coastlines; while the 600-foot summit, reached by an overgrown trail formerly provided with wooden steps bordered by wild tomato plants, provides the opportunity for searching for whales aspouting and for the hawk-like iwa which glides with hardly a movement of its zigzag wings.

The Kaena area is outstanding at least anthropologically and botanically. It is the site, now topped by the lighthouse, of an old heiau perhaps dedicated to the shark god. To the south is a cave, now partly filled by the old railroad bed, where departed spirits were wont to congregate. To the east is the spot where the demigod Maui, with his magic fishhook Mana-i'i-a-kalani, pulled the rock Pohaku-kauai, shaped like the island of that name, from the deep. Indeed, a walk along the coast shows the resulting mythical scratch of the rock in the lava, a scar interpreted by the haole geologist as an eroded dike.

Botanically, the area is a refuge for rare or interesting native and even endemic plants: On the higher slopes grows the perennial bunchgrass emoloa (Eragrostis variabilis); while after rains, on the flats below, springs up the velvet kakonakona (Panicum torridum) to flower and mature its grain before dry weather ends its telescoped life span. Along the dunes creeps the shrubby iliahi (Santalum ellipticum); while farther inland in the talus, this sandalwood becomes a small tree. In rock crevices along the hot, western shore where storm waves may reach them, thrives the ihi (Portulaca lutea), closely related to our smaller-flowered common purslane introduced as a vegetable by Don Marin before 1819 and now a troublesome weed. Farther mauka may be seen a relative of the avocado that has resorted to thievery and in this debased condition is a rootless, leafless parasite covering bushes with a wiry, yellowish-green net. This is the kaunoa pehu (Cassytha filiformis).

Makai of the old railroad cut in a pile of lava rock grows a venerable puapilo (Capparis sandwichiana) known to me since my first visit to the area in 1922 by railroad. This relative of the caper of commerce, like the nightblooming cereus, opens its large white flowers at night for sphinx moths. By morning they have wilted to pink.

In the Arctic, real trees grow close to the ground for protection. At Kaena, to escape the continuous drying trades, the ohai (Sesbania tomentosa) bears a trunk only about 6 inches high while its branches extend three to five feet in all directions of the compass. To reduce evaporation, the leaves are silky. The pea-like flowers, yellow and salmon, are very pretty but not as large as those of the cultivated sesban found so often in Filipino gardens. The Kaena dunes area is the last stronghold for this vanishing species.

SHOUT
SHARE
IT

In the sand grows a small akoko (Chamaesyce degeneri) with jointed stems, milky sap, and rounded leaves on injury turning red. A relative (C. celastroides var. kaenana), a coarse shrub, grows among the sun-baked rocks, flowering before its pinau- or dragonfly-shaped leaf-pairs develop. This relative of the poinsettia constituted a potential rubber supply during war years. Within a stone's throw, grows the mao (Gossypium tomentosum) with a short, snuff-colored staple. This endemic cotton is worthless commercially but as the plant is immune to a fungus disease attacking the cotton of commerce, it has been used in breeding experiments in Trinidad. A relative of the cotton, with similar, but smaller flowers, grows everywhere. It is the familiar ilima (Sida cordifolia) valued for leis. Less abundant is the velvety shrub uhaloa (Waltheria americana) so valuable in native medicine.

In the shade of the sandalwood grows the hiliee (Plumbago zeylanica), a shrub with sticky, white flowers, related to the blue plumbago of our gardens. It was the most powerful drug plant of the Hawaiians; and its acrid, poisonous juice was used for black tattooing. Climbing over rocks is the rare Hawaiian moonflower (Calonyction tuboides), while its day-flowering relative is the native morning-glory or koali-awahia (Ipomoea indica) with blue flowers fading pink. It is justly famous as a medicine, especially as a poultice for broken bones. A more distant but commoner relative about Kaena, the creeping pauohiiaka (Jacquemontia sandwicensis) grows almost everywhere except in the sand. According to mythology it protected Goddess Pele's baby sister Hiiaka from sunburn when she was left lying too long on the beach. Just as an avocado relative went beserk so did a morning-glory, eventually developing into an orange-yellow, rootless, leafless parasite. This is the kaunaoa or pololo, the Hawaiian dodder (Cuscuta sandwichiana), which sucks the sap with its thread-like stems from the plants growing mauka of the shore.

After exploitation of the sandalwood by the Hawaiian alii who forgot the conservation initiated by Kamehameha, not with sandalwood but with birds, a vain attempt was made to renew the industry by selling the fragrant bastard sandalwood or naio (Myoporum sandwicense). Such plants, in a shrubby form, grow east of Kaena, each year a little more battered by trampling cattle. In among the naio, grow a few dark green, glossy, columnar trees, the walahee (Canthium odoratum), bearing fragrant, white flowers. Its hard wood was used for implements and its leaves as a black dye.

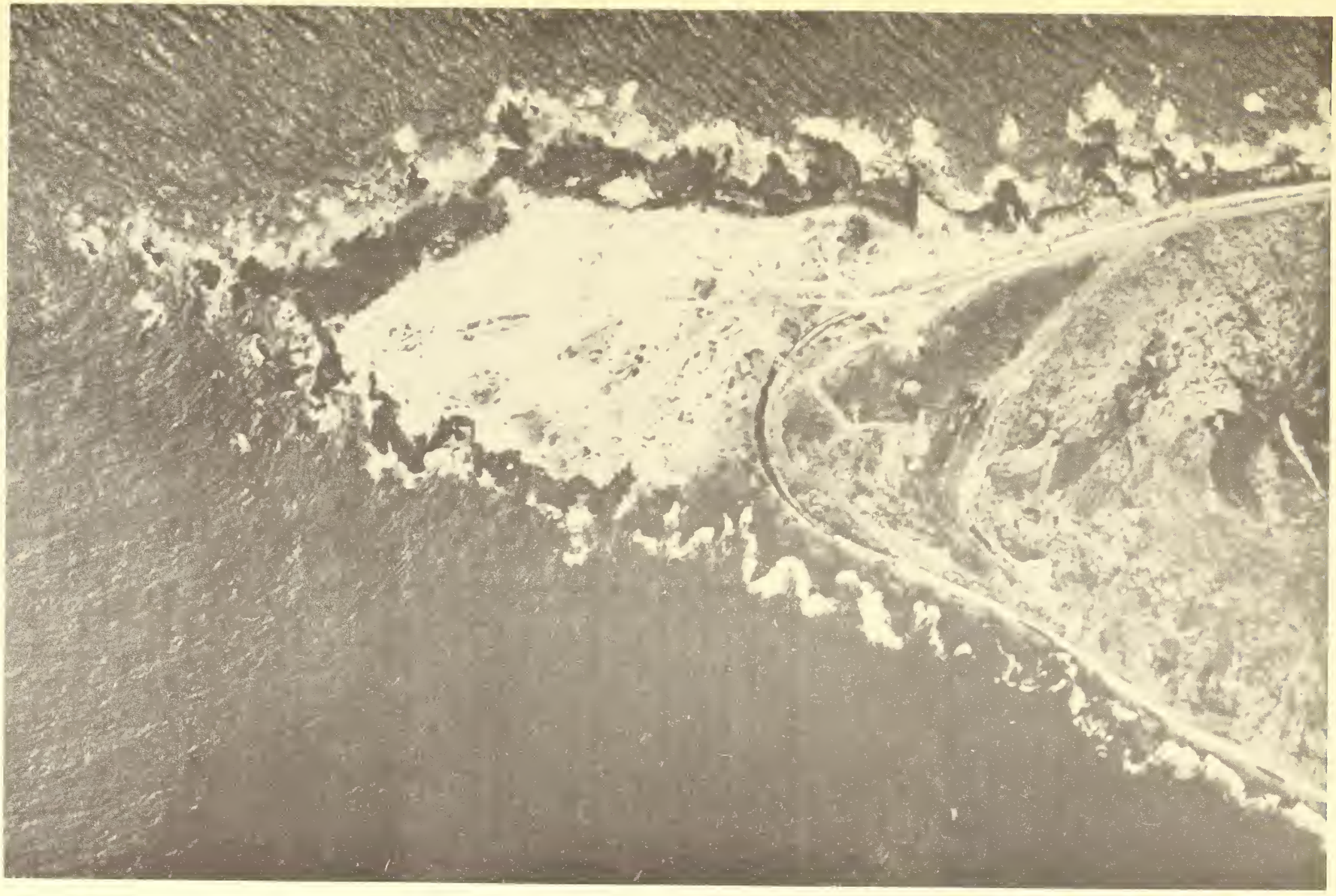
Almost everywhere is the naupaka kai (Scaevola sericea var. fauriei), its "half-flower" explained by Hawaiians as the result of a lovers' quarrel. But where is its trailing relative (S. coriacea), discovered at Kaena by Hillebrand before 1871 and not since?

The cliffs harbor the Hawaiian sagebrush (Artemisia australis), for which we know no Hawaiian name; while below them where there is seepage, quickly grows a delicate, erect, annual nehe (Lipochaeta remyi). A shrubby, perennial relative with sandpapery leaves and larger yellow flower-heads (L. lobata var. denticulata) sprawls over the loose rocks inaccessible to cattle. Along the shore, on the other hand, is the fleshy, mat-forming nehe (L. integrifolia var. megacephala) which, in this meltingpot of ours, hybridizes with the above to form a plant superior to either parent stock.

The SUMMER FORAY AREA at KAENA POINT

The photograph facing this page is the area for the dry trip for this summer. The photograph was taken from an altitude of 13,500 feet at about 15:00 hours on September 6, 1951, and thus has suffered from extreme enlargement. The dark patches inside the black rock border indicating the supratidal zone are vegetated areas on the buff colored sand, which shows white in the central area of the point. The straight lines on the sand were the commonly driven routes at that time. The regular dark curving line across the center of the point is the 3-o'clock shadow on the abandoned railroad grade. Just to the right of it is the "Highway". The high peak mentioned in the Degeners' narrative seems to be the white patch about 5/8 inch from the right border and a little above the center of the page.

(For further information on the 'Summer Foray' see page 92)



KAENA POINT

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APPROXIMATE SCALE —— METERS

NORTH

FIELD GUIDE TO THE MAUNA KAPU - PALIKEA TRAIL

Charles H. Lamoureux [1]

The following paragraphs are intended as an introduction to the Mauna Kapu - Palikea area which will be the site of a Hawaiian Botanical Society foray. It is not intended to present a complete list of the species present, but only to indicate some of the more interesting and conspicuous plants that can be found. Ferns and introduced species have been almost completely ignored.

To reach the trail, go through Waipahu towards Barber's Point on Farrington Highway (Route 90). About 1½ miles beyond the Ewa turnoff (Route 76) take the paved road to the right through the sugar cane fields. At the entrance of this road is a sign indicating "Nike Site, 63 and 78". Remain on the paved road which proceeds up the hill passing first through sugar cane fields and then through pasture land. About 5 miles from the start the road forks. The left hand fork goes to some missile sites. Take the right hand fork which goes to Mauna Kapu. About 1 mile beyond this, there are some houses and another fork in the road. Again take the right hand fork and after a hundred yards you will come to a locked gate. The key to this gate can be obtained from the State Division of Forestry. Proceed through the gate and about 2 miles farther up the mountain there is another junction with paved roads leading straight ahead, to the left, and to the right. Again, take the right hand fork and then proceed about half a mile to the end of the road at Mauna Kapu. The road at this point is on the main crest of the Waianae Mountain Range. The trail proceeds along the crest of the range from Mauna Kapu at an elevation of 2,776 feet to Palikea at an elevation of 3,098 feet. While the trail is along the crest of the ridge, there is not much steep climbing and the trail is wide enough that it is not dangerous. According to rainfall maps, the median annual rainfall in this area is some 30 to 40 inches. However, there are no long-term records available from gauges in the immediate area, and the vegetation which is present suggests that the rainfall is somewhat greater than 30 to 40 inches per year. After parking the cars, check in with the personnel on duty at the military installation as they want to know when anyone is hiking in the area. Then go on past the buildings and up a cement stairway which leads to a lookout point. From this lookout point one can get fine views from Pearl Harbor to Diamond Head and from Waipahu to Wahiawa. The trail itself begins with a sharp left turn at the end of the cement steps and climbs steeply through a bamboo thicket for about 100 yards. At the top of the peak (Mauna Kapu) the trail branches. Take the left hand trail, proceed about 15 feet then make a sharp right turn and you are on the main trail. The trail proceeds down the west side of Mauna Kapu in a series of switch backs. The vegetation here consists mostly of introduced plants: Eucalyptus, Christmas berry (Schinus terebinthifolius), Lantana (Lantana camara), Black wattle (Acacia decurrens), and various grasses. After descending about 100 feet in elevation, the trail again comes out onto the main mountain ridge. Just before reaching this ridge one can find along the trail plants of Phyllanthus sandwicensis (pamakani) and Rumex albescens. The rapidly spreading introduced weed Eupatorium riparium, also called pamakani, is abundant here. Just above the trail is a large shrub of Hibiscus arnottianus form parviflora, a small flowered form of the common white hibiscus. This form is found only in the Waianae mountains. Just beyond this, growing on the ridge are plants of the firebush (Myrica faya), a native of the Azores and Canary Islands which has become one of the worst pests in the drier Hawaiian forests. Also growing on the narrow ridge are specimens of the shrubby yellow flowered endemic Bidens waianensis, the kokoolau. A few stunted plants of Ohia lehua (Metrosideros) are also found here, and a little farther on some small koa (Acacia koa). Naupaka

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[1] Department of Botany, University of Hawaii.

(Scaevola gaudichaudiana), the bracken fern (Pteridium aquilinum), and ironwood (Casuarina equisetifolia) can also be found here. Shortly beyond this the trail descends about 20 feet on the right side of the ridge. The orange growth on the rocks here is Trentepohlia, one of the green algae. The trail comes out onto the ridge again and passes through an area of small ironwood trees. After about 200 yards the ridge becomes steeper, with the dominant growth still Casuarina. Here and there under the Casuarina are vines of the huehue (Cocculus ferrandianus).

Near the top of this slope the trail goes to the right around a large outcropping of rock. To the left of this outcropping are several interesting plants, including Santalum freycinetianum (sandalwood or iliahi), Myrsine sandwicensis (kolea), and Styphelia tameiameiae (pukeawe). The trail continues on up the ridge and at the next peak, on the right of the trail, is a shrub of Leptosperumum scoparium (manuka or tea tree), a plant which has been introduced from New Zealand.

From this point and on along the trail you can see several examples of the variation for which the Hawaiian flora is famous. Two plants which demonstrate this variation particularly well here are the ohia lehua and the pukeawe. In the pukeawe the color of the ripe fruits ranges from white through pink to red and even deep maroon. In ohia lehua there are tremendous variations in leaf form, hairiness, and size.

After a steep drop of a few feet, you can find on the right of the trail, at the base of an ohia tree, two epiphytes. Elaphoglossum reticulatum (ekaha) and Psilotum complanatum (moa). Beyond this, also on the right of the trail, is a clump of the ukiuki, Dianella sandwicensis, a pretty little lily. Growing nearby is maile (Alyxia olivaeformis). About 10 yards farther is one of the rarest and most interesting plants growing in this area. This is the heau (Exocarpus sandwicensis) a shrub in the sandalwood family. While some branches have a few broad leaves of typical form, most branches have only tiny scale leaves. The flowers are small and inconspicuous, but the fruits are bright red berries about a quarter of an inch long.

Just beyond this point the trail again drops down slightly and skirts a group of rocks on top of the ridge. Just to the right at the point where the trail drops are some clumps of Eragrostis variabilis (emoloa), a native grass which is well named. The species grows from sea level to more than 3,000 feet elevation, and shows a wide range of variation, particularly in the form of inflorescence. A few yards beyond the Eragrostis is a shrub with dark green shiny leaves, the manono (Gouldia terminalis). The trail again climbs to the top of the ridge, on the way passing through a sort of cave in the rocks. In this cave the orange Trentepohlia can again be seen on the rocks. The trail emerges onto a fairly large level area of the ridge top. There are a few strawberry guavas (Psidium cattleianum) and a silk oak (Grevillea robusta) growing here, probably planted by foresters. On the ohia lehua trees one can frequently find a small mistletoe, Korthalsella cylindrica. Among the shrubs growing in this area are the aalii (Dodonaea viscosa), and two species of pilo, Coprosma foliosa with opposite leaves, and C. longifolia with leaves in whorls of three. The false staghorn fern or uluhe (Dicranopteris) and the amaumau fern (Sadleria sp.) also grow here. About 100 yards farther on a single specimen of a tree violet (Viola trachelifolia) about 4 feet tall can be found just to the left of the trail. This species of woody violet is quite common farther along the trail. As you pass other clumps you will note that some of them have white flowers, while others have pinkish or lavender flowers. Just beyond this is a patch of the ornamental member of the iris family, Montbretia (Tritonia crocosmaefolia). This plant is a hybrid between two genera, and does not produce fertile seeds. It reproduces well here vegetatively, however. Mixed with the Montbretia is Cladium angustifolium, a native sedge which has leaves much like those of Montbretia, but has much different flowers.

Just beyond this the trail swings to the right, and the ridge becomes narrow again. Just down the ridge on the right hand side is a large shrub of Dubautia plantaginea, the naenae, an endemic member of the composite family. Just beyond here the trail again drops steeply, for about 30 feet. At the bottom of this grade is a branch trail to the right. This trail leads down through a small valley to the Honouliuli Firebreak Trail. The trail to Palikea, and the one which we will take is the trail that stays to the left on top of

the ridge, is badly eroded and supports little plant growth except for a few lichens and some Trentepohlia. The trail now passes around the side of a steep and sparsely vegetated slope and comes out into a small saddle with some black wattle (Acacia decurrens) trees on the left. Under these you can find an extensive patch of Viola tracheliifolia, the woody violet.

The trail continues on around another barren slope and into a small valley with a planting of Cryptomeria japonica (tsugi). Several shrubs of Dubautia grow here as well as a few plants of Sadleria. The trail then goes around another small hill and into another gulch in which Araucaria has been planted. A few trees of the kolea (Myrsine lessertiana) can be found in this valley.

The trail continues on to a rather steep drop off into a small valley. At this point the trail makes a sharp left turn and continues on in an uphill direction. The small steep sided valley directly below the trail is quite interesting, and is worthy of exploration by the more agile members of the group. The valley can be entered from the ridge on the right hand side (as you look into the valley from its head). Two plants to look for in this small valley are Rollandia waianaeensis which is an endemic lobelia and Labordia kaalae (kamakahala) which have not been found elsewhere on the trail. Two other species that are abundant here, but which can be seen closer to the trail up ahead, are Lobelia yuccoides (panaunau) and Cheirodendron trigynum, the olapa.

The trail continues on around toward the left and slightly uphill. The large version of staghorn fern, Hicriopteris glauca, is abundant here. At the edge of the gulch toward the left can be seen a small plant of Exocarpus, and just to its right the papala (Charpentiera sp.) with greyish-green leaves. Farther along are trees of Pittosporum sp. (hoawa), and Ilex sandwicensis (kawau). Just beyond this is a shaded, more gently sloping area with ohia lehua and olapa as the largest trees. Ferns growing here include the ekaha (Elaphoglossum hirtum) and Selaginella is also present. This is another spot where the woody violets are abundant. Just above the trail is an unusual plant of naupaka. It apparently represents the hybrid between the white flowered Scaevola gaudichaudiana which we saw earlier on the trail, and the blue flowered, hairy-leaved species Scaevola mollis. There are several more plants farther along the trail which are probably also hybrids, but there are no plants which appear to be pure S. mollis growing on the trail. Growing near the Scaevola is olomea (Perrottetia sandwicensis) a small tree with red petioles and veins. Just across the trail and down the slope growing with Lobelia yuccoides is a tree of Antidesma platyphyllum (hame). Leaving the shady gulch, there is a large tree of Monterey cypress (Cupressus macrocarpa) to the right of the trail, and just beyond it are plants of Casuarina and Cryptomeria. About 100 yards farther on is a small valley to the right of the trail which is worth exploration. Among the plants growing here which we have noted earlier are Antidesma, Viola, and Dubautia. Here we can also find Broussaissia arguta (puahanui), an endemic Hawaiian plant which is related to the cultivated hydrangea. Two small ae trees (Fagara semiarticulatum variety sessilis) which grow in this valley about 20 yards from the trail are the only specimens of this variety known to exist in the world. Two members of the Rubiaceae which grow here are the kopiko (Straussia sp.) and the manono (Gouldia terminalis).

From this point the trail climbs quite steeply to the summit of Palikea. A few hundred yards along the trail one finds the ohia ha (Eugenia sp.) growing with kopiko (Straussia sp.) and two species of ohelo (Vaccinium calycinum and V. dentatum). Beyond this point, the trail becomes a series of switch backs. About a hundred yards below the top of the mountain there is a depression in the ridge some 6 feet deep. Just to the right of the trail one can find a curious fern Microsorium spectrum (peahi) with very "unfernlike" triangular leaves. A large tree of Pittosporum nearby, and in the distance can be seen vines of Freycinetia arborea (ieie).

At the top of Palikea (elevation 3,098 ft.) is a magnificent view of Lualualei Valley and Mt. Kaala toward the northwest, Nanakuli toward the west, Barber's Point towards the south, Pearl Harbor and Honolulu toward the southeast, and Wahiawa and the north coast of Oahu toward the northeast. At the top of the peak is a small grassy area which makes a nice picnic spot. Mixed in with the grass is more Montbretia. The tree just below the peak are mostly ohia lehua, but one large shrub of Clermontia oblongifolia (haha) can be found to the south, about 10 yards from the grassy area.

The trail ends at this point, and the return to the cars is made by retracing our steps.

SOCIETY MEETING

DATE: June 3, 1963, 7:30 p.m.

PLACE: Agee Hall, Experiment Station of the Hawaiian Sugar Planters' Association, 1527 Keeaumoku Street, Honolulu.

SUBJECT: "Botanizing in the Galapagos Islands" (Illustrated).

SPEAKER: Dr. Charles Rick, Professor of Genetics and Geneticist, University of California at Davis. He is a Carnegie Visiting Professor of Horticulture for this spring semester. Dr. Rick is noted for his research work on tomato genetics and breeding.

ORGANIZATION NOTES

CONSTITUTION: As indicated in recent issues of the "Newsletter" the constitution is being revised. At the May meeting duplicated copies were distributed as prepared by the ad hoc committee of past presidents, Drs. Ed Britten (chairman), Charles Lamoureux and Donald Gowing. Dr. Louis Nickell (chairman of the membership committee) "co-opted" on details concerning his committee's activities. With the proposed constitutional revision there was circulated a commentary by the committee on the nature of the changes proposed.

The most obvious change is the separation of the rules governing the Society into the Constitution on the one part and the By-Laws on the other. The Constitution, the basic working document of the Society, was changed little from the same elements of the former constitution and should, as a Constitution, suffer little change. For this reason the proposed Constitution contains a minimum of rules for the basic functioning of the Society, as is recommended in the contemporarily popular manuals for parlimentary procedure. The working rules, which are more apt to require revision, are separated as By-Laws.

Most of the changes proposed reflect the spirit, and as a rule the letter, of the Constitution of the Society as printed in 1949. The various ammendments proposed in recent years, including those set forth in previous issues of the "Newsletter", have been incorporated.

Those who would like to see a copy of this document may obtain it from the Secretary. It is expected that this revised Constitution, if accepted at the June meeting as the Executive Committee proposes, will be published in an early edition of the "Newsletter" next fall.

MEMBERSHIP DIRECTORY: A 1963 membership directory of the Hawaiian Botanical Society will be issued this fall. Information about each member will be indicated, including his position, current research projects and fields of interest. In order to have this information, members are asked to complete the form which is found in this issue. It should be returned to the Hawaiian Botanical Society, c/o Department of Botany, University of Hawaii, Honolulu 14, Hawaii. Those who completed a form last year need not submit a new one unless new information is supplied. You may refer to last year's directory in the October 1962 issue to determine if you submitted a form last year or whether you wish to have the information given there changed.

NEWSLETTER PRODUCTION: Editor Alvin Chock and Yona, Mrs. Chock, have left for the mainland on a month-long tour to cover most of the United States. When we saw the itinerary we thought it was to be an all-summer foray...but in returning about June 14th we are sure he'll need the rest of the summer for recoupment and to get into shape for the first issue of the "Newsletter". The President of the Society, editing this issue (not having gotten around to getting someone else to do the job) and Past President Charles Lamoureux (who is handling the production details of this issue) will be among those hoping the recovery will be complete and timely.

Dr. Wallace Sanford, PRI, has volunteered to take over the actual production of the "Newsletter" beginning with the first fall issue. He will continue at this for the year. Along with Mr. Yutaka Okura, who regularly appears and helps put the meetings across even by adjusting the focus of the lantern slides without a request from the speaker, Wally Sanford should get a free one at the end of the year for coming to the aid of the Society in this way.

HONORARY MEMBERSHIP: Some suggestions have been received concerning Honorary Membership in the Society. The suggestions of desirable Honorary members would be welcomed by the Executive Committee and should be submitted in writing.

NEW MEMBERS: The following names, recommended by the membership committee, were elected to membership at the May meeting: Mr. & Mrs. Craig D. Whitesell, Box 7621, Hilo, Hawaii; Mr. A. C. Smith, Smithsonian Institution, Washington 25, D. C.; Mr. F. Jackson, 3647 Diamond Head Road, Honolulu 16; Mr. Edwin A. Meninger, The Flowering Tree Man, Drawer 45, Stuart, Florida; Dr. Dean Vest, Church College of Hawaii, Laie; and Dr. M. Diaz-Piferrer, Biology Department, University of Puerto Rico, Mayaguez, Puerto Rico.

MEMORIAL GIFT: The Society received a monetary gift from Mr. George Munro in memory of the late Mrs. Krauss and Mrs. Robertson. The fund was accepted with thanks by the Society on a motion that it be used for some appropriate purpose.

U N I V E R S I T Y O F H A W A I I

Dr. Albert J. Bernatowicz was promoted to full professor by the regents on May 16th. Al has been largely responsible for the early development of the thriving General Science Department at the University which he now runs alternately with Dr. Alison Kay. On sabbatical leave last year he reverted to the status of botanist afield in North and South America and Europe.

Dr. and Mrs. Fred Sparrow after a semester's sojourn as visiting colleagues in the Department of Botany have returned to Michigan, where he will teach algae and aquatic plants at the Douglas Lake summer station. While in Hawaii the Sparrows traveled widely in our islands searching for a particular fungus genus on grasses and finding many interesting aquatic phycomycetes of one sort and another. He was able to demonstrate sexual fusions in Monoblepharella to a number of us. In this water mold the egg cytoplasm moves out of the oogonium into the sperm cell...a rather unique situation.

Dr. Charles Lamoureux, Department of Botany, will spend the summer in Vancouver, British Columbia. He will be engaged in teaching summer school in the Department of Botany and Biology, University of British Columbia.

As our Treasurer Bill Bush went on the Tanager Expedition "E", so we characteristically have various members of our Society involved in field work this summer. The President of the Society is expecting to make another Indonesian trip.

At present two of Dr. Doty's assistants already are cruising northward along 180° West Longitude on the U. S. Coast and Geodetic Survey Vessel "Surveyor", probably nearing Amchitka pass now. These men getting a head start on the summer are Mssrs. Rudy Ochoco and Howard Saiki. Howard had just completed a tour of duty aboard the vessel "Eltanin" in the Antarctic before readying gear for the "Surveyor" cruise. You may wonder what is botanical about this: the boys are making measurements of the rates algae (as phytoplankton) make organic matter in the open ocean. They go on to Seattle and fly from there.

Mr. Vicente Alvarez, another of Dr. Doty's several assistants, will be leaving for Manila as soon as he can get packed after school is out. He will spend much of the summer organizing data from a cooperative study of the productivity of both Manila and San Miguel Bays and doing experiments near the island of Corregidor in the outer part of Manila Bay.

Mr. Roy Tsuda will spend his summer in Samoa as a teaching assistant to Dr. A. H. Banner. His plans include gathering floristic and ecological data on the reef algae and becoming familiar with the other biological aspects of a high island in the Central Pacific.

Miss Tiamji Komkris recently having spent some months teaching for the Peace Corps in Hilo has returned to Thailand. She has completed her work for the master's degree in botany with acceptance of her thesis on the anatomy of a local Euphorbia. She will be on the Botany Department staff of Kassetsart University.

Miss Rastini Rasid writes from Bogor that she is getting down to work with the collection of flowers for further anatomical studies.

Dr. Horace F. Clay, Horticulture Department, who has been away for some time, is now back from the mainland.

During the coming year Dr. Donald T. Watson, Professor of Ornamental Horticulture at Michigan State University will be spending his time on the Manoa Campus. He is a prolific publisher, having over 85 publications to his credit. Having begun his education in England he, in the end, obtained the Ph. D. degree at Cornell in 1948, and comes recommended as a decisive and able research leader stressing the physiological approaches to horticulture.

A group of ten students and faculty visitors in Genetics 625, Genetics of Speciation, were treated to a field excursion on May 9th to the Nanakuli area, led by Visiting Professor of Genetics, Dr. S. G. Stephens. Habitats of introduced Gossypium barbadense and endemic G. tomentosum were observed and more importantly, Dr. Stephens presented living evidence of natural hybridization between the two species, as occurring along the old Oahu Railway tracks, and just off Kamehameha highway in Nanakuli. Dr. Stephens' observations will be included in a paper on Hawaiian Cotton to be submitted to Pacific Science.

B O T A N I C A L N O T E S

HAWAIIAN BOTANICAL SOCIETY PRIZE: This year's prize awards go to Miss Marilyn Galang and Mr. Richard Kuramoto. This prize is awarded each year to the senior graduating from the University of Hawaii who has twenty credit hours of botany and who appears to the committee to be the most promising of being a productive botanist. This year's informal committee consisted of the following members of the Society: Drs. Oliver Holtzman, James Brewbaker, Bruce J. Cooil, and Charles Lamoureux. The committee reported that there were several very good candidates and the difficulties in choosing were not small. Assistance in the search for candidates was gotten from an unusually wide selection of individuals.

Miss Galang has just completed a study of the hybridization of Pluchea odorata and P. indica, two erect species respectively from the Americas and India. The sprawling hybrid is abundant on Sand Island with the two parent species. She is entering McGill University to further her botanical education.

Mr. Kuramoto has accepted an assistantship that will permit him to take up graduate work, perhaps with Dr. Vladimir Krajina, at the University of British Columbia.

J. F. ROCK BIBLIOGRAPHY: Dr. Egbert H. Walker the well-known bibliographer for botanical areas in the Pacific has an article in the April issue of Plant Science Bulletin entitled "Joseph F. Rock / 1884 - 1962 / An Appreciation" that tells us our editor Alvin Chock's article has been well received and is to be published in an early issue of Taxon.

HAWAIIAN BOTANICAL GARDENS FOUNDATION, INC.: The bill for the charter in Congress has been completed and the proposed trustees are being contacted. Senators Hiram Fong and Dan Inouye have both been consulted and the prospects are good of having the charter bill submitted to the Senate sometime in June or July. There are still a few more trustees to be obtained, but the prospects of securing them are very good.

HAMAKUA DEVELOPMENT: A letter from the Hamakua Economic Development Council, Inc., enclosed a copy of a proposal of this organization to set aside a forest park in the Hamakua District on the Island of Hawaii. This would include about 100 acres of native forest and 500 acres of planted forest. The proposal notes that negotiations in progress for the withdrawal of this area from the Forest Preserve for planting of sugar cane and that it is one of the few remaining areas of native forest available. It is noted in passing that the same fate may befall the Kaao-Ahualoa native forest likewise.

RECENT VISITORS: In the May 14th issue of the Honolulu Star-Bulletin there is the story with more details, but in essence the department has been blessed with visits from Dr. K. T. Glasziou, Director of the David Nath Research Center of the Colonial Sugar Refining Co., in Brisbane, Queensland, and Dr. A. J. Vlitos, Director of Tate and Lyle Central Agricultural Research Station in Trinidad, West Indies. These gentlemen are in Hawaii visiting the islands as guests of the Hawaiian Sugar Planters' Association have been spending their time in conference with such individuals as Dr. James Lockhart, Dr. Louis Nickell and others...also seeing a bit of our islands.

The David Nath Research Center includes the first phytotron or controlled environment facility, specifically designed to handle sugar cane. In the year it has been operating the optimum day and night temperatures and photoperiod for about 40 varieties and species of sugar cane have been established...a remarkable record.

NATIONAL SOCIETIES: Members of the Hawaiian Botanical Society Drs. A. C. Smith and Richard S. Cowan (Assistant Secretary of the Smithsonian Institution and Assistant Director of the U. S. National Museum of Natural History, respectively) are serving as representatives of the American Society of Plant Taxonomists on the Council of the AAAS. Member Dr. Reed C. Rollins (Harvard University) is serving as a representative of that society on the Governing Board of the AIBS.

SMITHSONIAN INSTITUTION: One of our members in Washington, Dr. A. C. Smith, has the direction of the Canal Zone Biological Area as one of his responsibilities.

NEWS ABROAD: The director of the L. H. Bailey Hortorium at Cornell, Harold E. Moore, Jr., was expected to visit Honolulu on his way back from the Far East, but notice has arrived that he will be returning via Tahiti and will be unable to get up this far north.

Dr. Sato, Biological Institute, Ibaraki University, Mito, Japan, has joined the Standing Committee on Pacific Botany (of the Pacific Science Association) as the chairman of the subcommittee on Pacific Systematic Botany. Note the address change from the old address list of botanists in the Pacific.

Dr. William J. Gilbert, Chairman of the Biology Department of Albion College, Albion, Michigan, is expected to arrive for a summer's work at the University on June 13th. He spent several months here about two years ago working toward completion of a floristic treatise of the marine green algae and expects to complete it this summer.

The passing of Dr. Wendell Holmes Camp, Professor of Botany and chairman of the department at the University of Connecticut on February 4th of this year removed one of the most interesting of our botanists from our midst. There are many happy stories brought to mind by the name of "Red" Camp along with recollection of many contributions toward the betterment of plant taxonomy and botany in general.

TENTH INTERNATIONAL BOTANICAL CONGRESS (Possible participation by the Society in group travel to the coming International Botanical Congress): As you know, the Tenth International Botanical Congress will be held in Edinburgh, Scotland, in August, 1964. Undoubtedly, several individuals from Hawaii, most of them members of the Hawaiian Botanical Society, will be attending. The cost of travel to Scotland, even when borne by the taxpayer rather than entirely by the individual is considerable, and one must look for ways of cutting the costs.

Certain airlines have a group travel plan (called the AFFINITY GROUP PLAN), whereby 25 people can travel together at reduced costs. For example, a round trip fare by economy jet from Honolulu to Scotland (Prestwick) via United Airlines and KLM costs $922.20. The group travel rate is $702.00, a saving of $150. A preconvention tour of the continent could be held for $1,101 saving by this group plan of $162.80.

In order to achieve these savings, there are certain regulations which must be followed:

1. all participants must travel together.
2. departure from Honolulu must be between Monday and Thursday, that is, not over the weekend.
3. all participants must have been members, for at least 6 months, of a group, the primary purpose of which is not to travel at reduced fares. The spouse and children children can accompany the member.

Since the Hawaiian Botanical Society could be considered a group of the type described in No.3, perhaps the Society should investigate the possibilities for travel to the International Botanical Congress. (CHL)

RECENT VISITOR: Dr. Isabel C. Cookson from the Botany School of the University of Melbourne in Victoria, Australia, passed through Honolulu, visiting with Dr. and Mrs. Lamoureux on May 5th and 6th. Dr. Cookson is a remarkable person now retired, spritly, outspoken and enthusiastic about her chosen field, paleobotany.

MAN'S PLACE IN THE ISLAND ECOSYSTEM

The Bishop Museum Press has advertised the availability of the newly published volume "Man's Place in the Island Ecosystem" edited by member F. R. Fosberg. From their flier:

"This volume, comprising the papers given in a symposium at the Tenth Pacific Science Congress in Honolulu in 1961, aims at several different but entirely compatible objectives. It develops the ecosystem concept, perhaps the central idea in modern ecology; it brings together scientists from a number of disciplines not ordinarily associated to consider a common problem, it examines the ecology of man on islands, and it goes farther than strictly scientific exposition to develop a philosophy to guide man's treatment of the environment in which he lives."

"The idea of the ecosystem as the frame of reference for ecological work and thought, although proposed many years ago, has only come to the fore very recently, and methods are only now being developed to deal with ecosystems. Briefly, an ecosystem is one or more organisms or populations or organisms plus the total environment that immediately affects them. It is a unit that can be as large or as small as convenience for study dictates, and it can be studied in the abstract or as a concrete example."

"In this symposium, after an explanation of the ecosystem concept and a definition of the island ecosystem by the convener, a geographer provides an essay on the diversity of islands in the Pacific, and several biologists elucidate the nature of the island environment, of insularity and its effects, and of the presumed situation before the advent of man. Philosophical papers by a geographer, a zoologist, and a botanist bring out the relationships between man and nature. Then anthropologists and geographers explain how

man has adapted to the island environment and what he is doing to it. A demographer shows the population instabilities that modern conditions have generated in this microcosm, and a geographer provides a brilliant summation and prospect. The weight of these papers is lightened by the recorded discussion introduced by people as eminent as the authors themselves. The result is a picture of islands and their inhabitants, abstract, to be sure, but calculated to be a foundation for all future work aimed toward generalization about islands."

FLORA HAWAIIENSIS - BOOK SIX

(A Review)

Announcement that book six of Otto and Isa Degener's loose-leaf "Flora Hawaiiensis" has appeared should suffice for most members of the Hawaiian Botanical Society. They know its value and will set about acquiring a copy. However, for those unacquainted with this important series, a word of introduction might be in order.

Dr. Otto Degener produced the first volume of this "New Illustrated Flora of the Hawaiian Islands" in 1933. Some of the loose-leaf pages appeared in 1932. The plan was to present a scientific description and notes on one side of a page and good illustrations of the plant on the other, and to punch the pages to fit a binder. The pages are not numbered, but each has a "family number" and the name of the genus and species in the corner to facilitate arranging them. Degener set out to present 100 species per volume, but in his generosity, the first five volumes contain more than 575 species. The present volume seems to be a double one, with 187 leaves (374 pages) of descriptions and illustrations. The balance of its 534 pages contain discussion of families and genera, keys, and two special articles, one a tribute to the late Franz Elfried Wimmer (1881-1961), authority on lobelias; the other an interesting anecdote about Henry Brougham Guppy in Hawaii.

Dates of publication (assembly) of the first four volumes were 1933, 1935, 1938 and 1940. Then the war brought a pause. On April 1, 1946, a tidal wave hit the Degener house at Mokuleia, Oahu, and much of the stock of volumes 1 to 4 was destroyed by sea water. Undaunted, Degener had them reprinted by offset, and sold them in one volume of 1192 pages for $6.50, a real bargain. Book 5 appeared in 1957 ($5.00), and now Book 6, with 534 pages will probably sell in book stores for around $10.00.

This project has been so highly regarded by scientists that since 1956 it has received grants from the National Science Foundation. In 1962, Dr. Degener was awarded the Linne medal by the Royal Swedish Academy of Science.

Its value to the student of Hawaiian botany is also great. The botanist, who can recognize a species from its technical description - no simple task, can use one side of the page. The rest of us can make good use of the other, for the illustrations are well drawn and clearly present distinguishing characters, including details of fruit and flower. Although all six volumes together describe only about one-fifth, or less, of the species of ferns and flowering plants growing wild or established in Hawaii, those which have appeared to date represent so many plant families that one can get a fair idea of the flora. The Degeners are performing a fine service to botanical knowledge by this work. (E.H.Bryan,Jr.)

RECENT PUBLICATIONS

BELL, R. A. & W. E. HARVEY. (Mar.) 1963. Wax from the heartwood of Phyllocladus trichomanoides. N. Z. Jour. Sci. 6(1): 64-65.

CAMPBELL, ELLA O. (Mar.) 1963. New Zealand's largest liverwort. Tuatara 11(1): 16-19, pl. 1, fig. 1.

DANSEREAU, PIERRE. 1962. New Zealand revisted. Gard. Jour. 12(1): 12-16; (2): 55-58; (3): 108-113; (4): 144-147; (5): 185-189; (6): 217-219, 227, 49 figs.

DOTY, MAXWELL S. 1962. (An analysis of data obtained during simultaneous methodological investigations by scientists of various countries in the Hawaiian Islands region. Oceanology 2(3): 543-553.) in Russian. A comparison of results of the simultaneous measurement of the rates organic matter is produced in the open ocean near Hawaii by the participants in the productivity meetings held in conjunction with the 10th Pacific Science Congress.

FRYXELL, PAUL A. (Mar.) 1963. Morphology of the base of seed hairs of Gossypium. I. Gross morphology. Bot. Gaz. 124(3): 196-199, figs. 1-2.

MAHLBERG, PAUL G. (Mar.) 1963. Development of non-articulated lactifer in seedling axis of Nerium oleander. Bot. Gax. 124(3): 224-231, figs. 1-13.

McCUSKER, ALISON. (Apr.) 1963. Gynodioecism in Lecopogon melaleucoides A. Cunn. Linn. Soc. New South Wales, Proc. (1962) LXXXVII, pt. 3 (406): 286-289, tabs. 1-3.

MURRAY, JAMES. 1962. Keys to New Zealand lichens: Part 1. Tuatara 10(3): 120-218, pl. 1, figs. 1-17.

_____. (Mar.) 1963. Keys to New Zealand lichens. Part 2. Tuatara 11(1): 46-56, pls. 2-4, figs. 18-41.

PEACOCK, W. J. (Apr.) 1963. Chromosome races in Goodenia bellidifolia Sm. Linn. Soc. New South Wales, Proc. (1962) LXXXVII, pt. 3 (406): 388-396, pls. xiv-xv, tabs. 1-3, figs. 1-2.

PRICE, SAM. (Mar.) 1963. Cytological studies in Saccharum and allied genera. VIII. F_2 and BC_1 progenies from 112- and 136-chromosome S. cfficinarum x S. spontaneum hybrids. Bot. Gaz. 124(3): 186-190, tabs. 1-3, fig. 1 (HSPA Jour. 117).

RIGBY, J. F. (Apr.) 1963. On a collection of plants of Permian Age from Baralaba, Queensland. Linn. Soc. New South Wales, Proc. (1962) LXXXVII, pt. 3 (406): 341-351, pls. xi-xii, tab. 1.

ROHWEDER, OTTO. (Feb.) 1963. Anatomische und histogenetische Untersuchungen an Laubsprossen und Blüten der Commelinaceen. Bot. Jahrb. 82(1): 1-99, figs. 1-30.

SKOTTSBERG, C. (Apr.) 1963. Zur Naturgeschichte der Insel San Ambrosio (Islas Desventuradas, Chile). 2. Blüten pflanzen. Arkiv Bot. Ser. 2, 4(15): 465-489, pl. I-XXII, figs. 1-10.

WILLIAMS, BARBARA J. (Mar.) 1963. Some facts about lichens. Tuatara 11(1): 41-45.

WISELY, B. & C. PURDAY. (Mar.) 1963. A culture method for marine diatoms and flagellates. Tuatara 11(1): 20-26, figs. 1-2.

HAWAIIAN BOTANICAL SOCIETY

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Please return completed form to the Hawaiian Botanical Society, c/o Department of Botany, University of Hawaii, Honolulu 14, Hawaii.

THE SUMMER FORAYS

A last minute report to the Society on their status

The forays will be to the areas described in the stories beginning on page 77, the first page of this issue, and on page 81. It is hoped that we can make these annual affairs with different botanically desirable areas being treated in as useful a scientific way as possible. These bits of Hawaii are both desirable and easy family-group outing areas incidentally, and the Committee is certain they will be enjoyed by the membership and those who come along with them.

The coincidence of vacations on the part of the regular editor of the "Newsletter"; on the part of Miss Beatrice Krauss, Chairman of the Foray Committee; on the part of Mr. Jan Newhouse, a member of the Committee, has been unfortunate in delaying the final arrangements beyond the deadline for this issue. This has been accentuated by the impending absence of other Committee members and mainsprings behind this activity: e.g., our secretary is leaving for a vacation of scientific meetings on the mainland; Dr. Charles Lamoureux will be unable to lead the Palehua trip scientifically, being in Vancouver for the summer; and the Drs. Degener expect to be on Lanai at some as yet not determined date this summer.

Nevertheless the forays seem all set to come off in very good style though the people instrumental in preparing for them have not been on hand at any one time together so that final arrangements could be ironed out. This "finalizing" will be done soon after Miss Krauss returns and resumes active charge of the non-scientific logistics. Largely this means she is the one whom you should contact as to where, when, what, who, and so forth. Miss Krauss will endeavor to arrange rides for those without their own transportation.

In general, you must go as a self-contained operation. There are none of the facilities frequently provided by the State Parks people in either foray area. These areas are essentially unimproved and, thus, nicer botanically. You must bring your own water, for example. You can drive to both areas and begin to forage without having to make a long hike first.

As scientific leaders of the forays we are currently expecting the Drs. Degener to be on hand for the Kaena Point trip. Mr. and Mrs. Chock have been asked to lead the Palehua trip. As these forays are carried out, after further planning this year and as they may evolve over the years, we look forward to their producing results of scientific value or results of value to the State of Hawaii.

The two Sunday dates: July 14, Bastille Day in Papeete, for the foray to Kaena Point; and August 18, a day of no consequence except for coincident birthdays, for the foray along the trail to Palehua. Watch the newspapers and contact Miss Krauss for further information and plan to be there.

MORE ON GOSSYPIUM:

As an item pertinent to Dr. S. G. Stephens' work with the native cottons in Hawaii during the current year, we note the publication of the following book by J. H. Saunders: "The Wild Species of Gossypium and Their Evolutionary History" an Oxford University Press production.

Other books noted: "Nitrogen Metabolism in Plants" by H. S. McKee, from the Oxford University Press.

"Physiology and Biochemistry of Algae" edited by Ralph Lewin, from the Academic Press....at Academic Press prices.

"Plant Taxonomy" a new edition by Lyman Benson of Pomona College. Published by the Ronald Press people.

"Proceedings of the Symposium on Algology" edited by P. Kachroo and published by the Indian Council of Agricultural Research in New Delhi, India.

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The HAWAIIAN BOTANICAL SOCIETY was founded in 1924 to "advance the science of Botany in all its applications, encourage research in Botany in all its phases," and "promote the welfare of its members and to develop the spirit of good fellowship and cooperation among them." "Any person interested in the plant life of the Hawaiian Islands is eligible for membership in this Society."

The Hawaiian Botanical Society Newsletter is published monthly, except during the summer months of July, August, and September. It is distributed to all Society members and other interested individuals and institutions, with the purpose of informing them about botanical news and progress in Hawaii and the Pacific. News contributions and articles are welcomed. The deadline for submission of news items is the 20th of each month prior to publication.

Duplicated at the University of Hawaii and Bernice P. Bishop Museum.

Membership Dues are $2.00 per calendar year and include receipt of the Newsletter.

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